

Lone terrorists: A study of run-over attacks in Israel

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journals.sagepub.com/home/euc**Simon Perry, Badi Hasisi and Gali Perry**

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Abstract

There is agreement amongst scholars regarding the lack of a unique profile for lone wolf actor terrorists. Therefore, this study focuses on the characteristics of the lone attack, which has rarely been studied. The study seeks to fill these gaps, examining the element of opportunity and situational conditions by focusing on the offence/attack rather than on the offender/attacker in cases of run-over terrorist attacks. In order to shed more light on this dangerous phenomenon of lone-actor terror in general, and lone run-over attacks more specifically, this study examines all 62 run-over attacks carried out in Israel between January 2000 and March 2016. Data for this study were obtained from confidential and open sources. The study's findings reveal certain characteristics of lone run-over attacks regarding the 'four pillars of opportunity' (target, weapon, tools/training and facilitating conditions). These findings suggest that, in order to prevent run-over terrorist attacks or to minimize the damage, one should not concentrate primarily on identifying the profile of the potential attacker. Rather, effective counter-measures should identify the run-over attack elements of situational opportunities and introduce effective situational crime prevention measures that have been found to be effective in preventing non-terrorist crime.

Keywords

Counter-terrorism, lone wolf actors, run-over attacks, situational crime prevention, target hardening

Introduction

Over the last decade, there has been a dramatic increase in the volume and the severity of 'lone wolf'¹ fundamentalist terrorist attacks.² By 'lone wolf' actors we refer not necessarily to individuals who truly act in isolation, without contact with other individuals, but to terrorists who before and during an attack have no ties and orders from a known terrorist organization (see Burton and Stewart, 2008; Spaaij, 2010). Security agencies are

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experiencing difficulties in coping effectively with this form of terrorism, which is receiving growing public attention. The agencies' difficulties stem from the fact that this form of terrorism is often less traceable and more unpredictable in comparison with organizational terrorism.³ Whereas terrorist organizations maintain infrastructure and communication channels that allow monitoring and interception (Perry, 2014), individually planned and executed attacks are more difficult to detect prior to the act. Owing to the challenge that dealing with lone terrorists presents, there arises the need to study the phenomenon and possible ways to prevent it, or at least to minimize its damage.

Limited research has focused on lone terrorists, mostly concentrating on identifying risk factors (such as personal, mental, social, economic, political, religious and other ideological characteristics) that increase the probability of involvement in terrorism. These studies tend to focus on the profile of the perpetrator (Martin, 2015). Yet it appears that there is agreement amongst scholars that there is no specific profile for lone-actor terrorists (Bakker and De Graaf, 2011; Gill, 2015; McCauley and Moskalenko, 2014).

If there is no specific profile of the lone attacker, one may ask whether there is a profile for the attack itself. Few studies (Gill, 2015; Schuurman et al., 2017) examine the characteristics of lone-wolf attacks, their apparatus and methods of preparation, and assess how these attacks differ from what we already know regarding attacks carried out by terrorist organizations. This study seeks to fill those gaps, using the Rational Choice approach (Felson and Clarke, 1998). It examines the element of opportunity by focusing on offences rather than on offenders and by studying the characteristics of the attacks (rather than those of the attackers).

Freilich and Chermak (2009) and Kennedy (2010) recommend conducting in-depth analyses of specific kinds of terrorist attacks. In keeping with their recommendation, this study specifically examines lone terrorist run-over attacks, which are carried out by utilizing a vehicle or heavy machinery, to run over the victims of the attack. This is because this deadly attack method is relatively common amongst lone attackers (and receives encouragement from terrorist elements). The two deadly attacks in Europe – Nice in July 2016 (Mohamed Lahouaiej-Bouhlel), and Berlin in December 2016 (Anis Amri) – illustrate the danger of this phenomenon of run-over attacks, which require little advance planning or logistical support but have distressing consequences.

In order to shed more light on this dangerous phenomenon, this study specifically examines the situational conditions as well as the characteristics of lone run-over terrorist attacks in Israel. The main question of the study is whether there are specific characteristics of lone run-over attacks. The study attempts to comprehend the decision-making choices that lone terrorists make before and during their run-over attack. Our assumption is that these choices are an outcome of specific opportunities, as perceived by the attacker, to commit such acts of terror. This means that individuals make their decision to engage in acts of terror in particular settings. Should such conceivable common features for lone run-over attacks exist, it might enable effective situational crime prevention (SCP) counter-measures to prevent specifically lone run-over attacks or at least minimize their damage.

Although we studied the entire population of the attacks (62 cases between January 2000 and March 2016), all of the cases occurred only in Israel. The literature on terrorism has many examples of the Israeli context, owing to the fact that it is a Western-style democracy, has a relatively high per capita income, and experiences a high frequency of

terrorist events (Waxman, 2011). Scholars have previously noted the benefits of using the Israeli 'experience' to inform and assist European countries in dealing with an increasing threat and frequency of terrorism (Ganor, 2011). Furthermore, policing, intelligence and military officials often travel to Israel in order to learn from the experiences of their Israeli counterparts with respect to terrorism.

The following section discusses the theory of Rational Choice and the four pillars of the attack opportunity as applied to the lone terrorist. In line with these four pillars of terrorist opportunity, a number of predictions regarding lone run-over attacks are presented. We then describe the research method employed as well as the population of lone terrorist run-over attackers and the specific attacks studied. The fourth section presents the study's findings concerning the characteristics of the run-over attacks studied. Lastly, we focus on how analysing the characteristics of run-over attacks presents an opportunity to better understand lone wolf terrorism in general and lone wolf run-over terrorism in particular and propose suggestions for preventive efforts to deal with this complicated phenomenon.

The 'four pillars of the terrorist opportunity' and the lone terrorist

As mentioned, analyses of the profile of attackers do not provide enough insight regarding the phenomenon of lone wolf attacks (Bakker and De Graaf, 2011; Gill, 2015; McCauley and Moskalenko, 2014). Therefore, we have chosen to focus on the characteristics of the attack. Our decision to focus on the attack resembles criminological studies that have opted to analyse the criminal act rather than the perpetrator's profile (Clarke and Newman, 2006).

The course of every act of crime/terrorist attack, including those conducted by lone wolf attackers, is dictated by the immediate circumstances of the situation (Clarke, 1997). According to Clarke and Newman (2006), the opportunity that relates to the circumstances of an attack should therefore be analysed. These circumstances related to opportunity can be divided into four elements, which are referred to as the 'four pillars of opportunity': *target*, *weapon*, *tools/training* and *facilitating conditions*. These four elements are essential when carrying out a terrorist attack (Bakker and De Graaf, 2011; Clarke and Newman, 2006; Fahey et al., 2012). In the following, each of these four pillars of opportunity will be described as it relates to lone wolf terrorism.

Target

Theoretically, potential targets are unlimited; but several fundamental characteristics make certain targets more attractive for terrorists (Clarke and Newman, 2006; Newman and Hsu, 2012). Lone wolves, unlike terrorists affiliated with organizations whose aim is to gain support (whether from other terrorists, potential recruits or financiers), are more independent in their target selection (Malkki, 2014; Spaaij, 2010, 2012).

The literature divides targets chosen by terrorists into two categories: hard and soft targets (Asal et al., 2009; Newman and Hsu, 2012). Hard targets are better defended and therefore more difficult to attack (that is, government buildings, military bases). Soft targets are more exposed and therefore facilitate easier attacks (that is, public and easily

accessible areas, roads and public transport, shopping centres and outdoor public events). Although hard targets might be more difficult to attack, a successful terrorist attack against a hard target may mean increased public and media attention and increased fear and anxiety and have a greater effect (Clarke and Newman, 2006; Newman and Hsu, 2012). Despite the significant achievement that hard targets provide to the terrorist, lone wolves more often choose soft targets owing to their limited resources and lack of organizational infrastructure (Institute for Economics and Peace, 2014; Spaaij, 2010, 2012).

The accessibility of the target to the attacker is another major consideration. The distance, the complexity of the journey, the attacker's acquaintance with the route and the target area, escape route options, the possibility to bring or receive a weapon close to the target – all play a significant role in this resource versus benefits consideration (Clarke and Newman, 2006; Spaaij, 2010, 2012). Therefore, a significant number of terrorists select targets close to their place of residence (Becker, 2014⁴; Newman and Hsu, 2012). Many lone terrorists do not leave their hometowns when attempting to carry out an attack (Becker, 2014; Capellan, 2015; Spaaij, 2010, 2012). Alongside the low level of resources required for the journey, another advantage of a nearby target is the attacker's level of experience and knowledge. For lone terrorists, who often do not have the time or ability to arrange pre-training or dry runs, this kind of knowledge can be significant (Bakker and De Graaf, 2011; McCauley, 2013). Familiar targets are usually a part of the lone terrorist's daily routine – workplace or on the way to work, or places they frequent in the surroundings neighbourhoods (Brantingham and Brantingham, 1993). Indeed, most lone attacks occur in familiar places (Becker, 2014; Gill et al., 2014). On the other hand, some lone terrorists choose to conduct the attack outside their familiar area in order to demonstrate the importance of their ideology (Bakker and De-Graaf, 2010; Gill et al., 2014; Moskalenko and McCauley, 2011; Wright, 2013). According to a Meir Amit report (2014), run-over attacks in Israel during 2014 occurred in open public spaces, such as light rail stations, which increases the chance that the terrorists will be able to escape.

Target selection is one of the most essential stages in the terrorist's decision-making process (Clarke and Newman, 2006; Drake, 1998; Jordán, 2008; Nesser and Stenersen, 2014). When asking which targets are the most common amongst terrorists we find that private citizens and property, businesses, and police and military targets account for over 50 percent of the total (LaFree and Dugan, 2009, Nesser and Stenersen, 2014; Wright, 2013). Spaaij (2012) found that lone wolf terrorists in the US and Europe were more likely to attack civilian targets than governmental or military targets. Similarly, an updated analysis of 84 terrorist attacks occurring in the US between 1940 and 2012 revealed that the majority (about 60 percent) of lone wolves chose civilian targets, 32 percent chose government targets, whereas military targets accounted for only about 7 percent of the attacks (Becker, 2014). However, this trend may be changing: a recent research report by Hamm and Spaaij (2015) reveals that, in the US, uniformed police and military officers have become the preferred target for lone wolves.

Weapon

As with the target selection, the terrorist's weapon-selection process is guided by a careful consideration of resources versus benefits. Accordingly, the leading considerations in

the choice of weapon are how difficult it will be to obtain it, on the one hand, and how much potential damage it could cause, on the other (Clarke and Newman, 2006). The literature describes four main groups of weaponry used in terrorist attacks: cold weapons (such as knives or axes), firearms, explosives and unconventional (nuclear or chemical) weapons (LaFree and Dugan, 2009; Spaaij, 2012).

Cold weapons are easy to come by, difficult to regulate, simple to operate and simple to dispose of after the attack (Clarke and Newman, 2006; Gill et al., 2014; Teich, 2013). Another weapon that is easy to come by, difficult to regulate and simple to operate is the vehicle used in run-over attacks. Such a car, tractor or other motorized machinery is an everyday object turned into a weapon. Hamas, mostly via social media, campaigned to promote vehicular terrorism as a preferred method of Palestinian attacks, for a high number of casualties.⁵

World wide, explosives and firearms are the most common weapons used by terrorists (LaFree and Dugan, 2009), although there seems to be a decline in the use of explosives (Clarke and Newman, 2006; Institute for Economics and Peace, 2014). According to Hamm and Spaaij (2015), prior to the 9/11 terrorist attack, a substantial number of the lone wolf attacks involved bombings. However, since 9/11, there has been a decrease in bombings in the US, which could be attributed to government prohibitions against selling materials for improvised bomb-making enacted in the aftermath of the Oklahoma City bombing. Instead, the preferred type of weapon has become different types of high-velocity firearms. Most terrorists use only one kind of weapon during the attack (Van Dongen, 2014). Spaaij (2010) studied lone terrorists from 15 different countries and found that firearms are one of the three preferred weapons. Specifically, in the US it is the preferred weapon because of the relative ease with which firearms may be obtained. When compared with members of terrorist organizations, lone attackers lack resources and knowledge. This suggests that they would tend to choose relatively uncomplicated means of obtaining and operating weapons. This choice leads them to avoid hard targets (Becker, 2014; Borum, 2013; Gill et al., 2014).

Tools and training

The term 'tools' refers to items or equipment that can be used for planning and preparing the terrorist attack. Such objects are usually associated with daily routine activities (Bakker and De Graaf, 2011; Clarke and Newman, 2006; Meyer, 2013). There are many possible tools, such as documentation (passports, identity documents or driving licences), transportation and technologies. As to transportation means, Gill, Horgan and Deckert (2014) found that the use of a private car for transport was far more common for lone wolf terrorists than for terrorist organizations. Technologies such as cell phones and the worldwide net have created a wide range of possible tools for terrorists, especially lone wolves. They also tend to use the Internet for virtual interactions and as a learning source. For lone attackers, online manuals are the perfect solution, enabling them to be radicalized, taught and trained, as well as receive assistance in planning and executing attacks (Bhui and Ibrahim, 2013; Nesser and Stenersen, 2014; Stewart, 2011; Weimann, 2012). Social media play an important role, bringing together individuals who share the same ideology for the purpose of finding spiritual support and guidance (Pantucci, 2011;

Weimann, 2012). Terrorist organizations exploit the Internet to appeal to potential lone attackers and to seduce, train and encourage them to attack (Bhui and Ibrahim, 2013; Gill and Corner, 2015; Weimann, 2012). Gill, Horgan and Deckert (2014) found that 46 per cent of a sample of 119 lone wolves had been trained for the attack through the Internet and other media.

Facilitating conditions

Facilitating conditions are the social and physical arrangements of society that increase the probability of terrorism (Clarke and Newman, 2006). Whereas the tools are the tangible elements (such as cell phones) used to execute the attack, facilitating conditions are the societal, environmental and institutional circumstances that enhance the opportunity of the terrorists and increase the odds that an attack will be carried out successfully (Abadie, 2004; Piazza, 2006).

Facilitating conditions can be related to political, sociological, economic and personal factors (Clarke and Newman, 2006; LaFree and Bersani, 2014). In Western democracies, the need to protect human rights may stand in the way of effective counter-terrorism, resulting in the rise of lone terrorism (Bakker and De Graaf, 2011; Borum, 2013; LaFree et al., 2010). In contrast to terrorist organizations, lone extremists tend to operate in developed democratic countries where the political regime is stable, such as the US and West European countries (Becker, 2014; Spaaij, 2010; Spaaij and Hamm, 2015).

Social disorganization may serve as a facilitating condition for terrorism, when mechanisms of social control lose their ability to function (Davies, 1962). Similar to terrorist organizations, lone wolf extremists tend to operate in heterogeneous countries, especially in Western Europe (Caruso and Schneider, 2013), where some ethno-religious groups express their negative feelings toward majority or minority groups through acts of terror (Appleton, 2014; Spaaij, 2010; Teich, 2013). Heterogeneity increases hostilities between ethnic and religious groups, which may lead to extremist actions against an out-group by those who share mutual ideological beliefs (Freilich et al., 2015; Gruenewald et al., 2013).

Another important facilitating condition is replicating recent successful attack plans. Imitating prior attacks in this fashion ('copycat') may assist offenders to overcome the gap between planning and executing their attack plan. This is even more important for lone actors, because their access to knowledge and resources is limited and following others can be used as a 'shortcut' to effective attacks. Accordingly, scholars have found evidence of copycat behaviour amongst lone actors in the US (Gill, 2015).

Hypotheses based on the four pillars of lone attack opportunity

The above-mentioned literature indicates that, contrary to the analysis of risk factors in the personal profile of lone attackers, studying the (four pillars of) opportunity provides a more in-depth understanding of the attack and its characteristics. Moreover, the decisions made by terrorists are determined by incentives and opportunities that are unique to a specific type of offence and its contextual circumstances (Clarke and Cornish, 2001; Felson and Clarke, 1998). Therefore, as previously mentioned, it is recommended that

researchers study the terrorists' strategies and specific attack plans by analysing the methods, mechanisms and procedures involved in specific kinds of terrorist attack (Freilich and Chermak, 2009; Kennedy, 2010). Accordingly, we focus on run-over attacks, a lethal attack method relatively common amongst lone attackers.

Spaaij (2012) concludes that lone terrorists use weapons that are easy to come by. It is more difficult in Israel (than in the US, for example) to obtain firearms. Therefore, many lone terrorist attacks are committed by weapons that are easily acquired, such as knives,⁶ Molotov cocktails or vehicles/heavy equipment (that is, tractors) to commit run-over attacks. Despite the relatively low volumes of run-over attacks in comparison with Molotov or even knife attacks, the potential lethality of run-over attacks is greater than that of other two forms of attack.⁷

Lone terrorists have far fewer resources than terrorist organizations and hence limited access to targets (Becker, 2014) and to weapons, tools and training. In line with the 'four pillars' of lone attack opportunities, it is expected that run-over attacks:

- a. occur primarily against soft targets in places that are familiar to the attacker (and do not require information gathering);
- b. are carried out by vehicles that are easily accessible to the attackers;
- c. do not require special training on the part of the attacker who drives the vehicle in the attack;
- d. take advantage of facilitating conditions;
- e. involve improvising for the most part and do not require a long decision-making process prior to executing the attack, which means that the time between making the decision to carry out the attack and the attack itself is relatively short.

The present study of lone run-over attacks: Population and research method

In this study, we examined all 62 run-over attacks carried out in Israel between January 2000 and March 2016, resulting in 27 victims and 253 injured. In this regard, it is important to note that, in contrast to many studies on terrorism, the cases for the current study were not sampled; rather, the entire population of run-over lone-actor attacks in Israel within this period is included and analysed.

Data collection for this study included over 100 variables related to each attack, obtained over two and a half years from both confidential and open sources. Three research assistants with appropriate intelligence clearance were allowed to review the confidential records of each of the run-over attackers and attacks. They reviewed the records following a list of variables, related to (1) the personal characteristics of the attackers and (2) the characteristics of the attacks in regard to the target, weapon, tools and facilitating conditions. In order to maintain consistency in the data collection and not lose information, the assistants were given identical instructions regarding what information needed to be obtained regarding each of the variables. When questions were raised about the meaning and/or the interpretation of information regarding a specific variable and how this information should be encoded, the research assistants were instructed to contact the principal investigators, who made a clarification (which was then passed

along to all of the research assistants). Because the process involved three research assistants, in the final process one research assistant reviewed all of the information collected and was responsible for encoding and declassifying the information (to ensure that sources or methods were not revealed).

Information was also gathered on the same attacker and attack-related variables from open sources. Two additional research assistants reviewed court proceedings and decisions; these contain many documents elaborating on the factual element (*actus reus*) of these attacks, as well as information about the criminal intent. The research assistants also reviewed additional open sources, such as news sites and other media publications on the attacks and the attackers, public databases, social media and some clips of the attacks (taken by bystanders or CCTV cameras). These two research assistants were also given identical instructions regarding what information needed to be obtained regarding each of the variables. Similarly, the principal investigators made decisions when questions were raised about the meaning and/or the interpretation of an information item and how this information should be encoded. Once again, one research assistant reviewed all the information collected and the encoding of the information.

For each of the run-over cases, information was gathered and examined on the attack using the following parameters: attack date and time, chosen location, type of target (that is, bus station, intersection) and whether it was directed against civilians or security forces, whether the site of the attack was linked to the attacker (that is, whether the attack was carried out in an area that was part of the assailant's daily routine area of residence or work), and personal information (name, age, marital status, place of residence, health, education, jobs, socioeconomic status, association with a terrorist organization, religious affiliation). Information was also gathered with regard to whether the attacker displayed unusual behaviour prior to the attack, which might have indicated something about their condition and/or their intentions to attack. We examined how the perpetrator obtained the vehicle used in the attack, tried to understand whether the attack was carried out spontaneously or was planned, and sought to learn whether there were secret partners involved or who were aware of the planned attack.

In the last phase, the data gathered from both confidential and open sources were coded into a comprehensive data set. To minimize any potential gaps in the coding process, only the principal research assistant overseeing data collection was in charge of this coding. The coded database was then reviewed by the principal investigator and one other research assistant and randomly compared with the content of the cases to verify the consistency of the coding.

Findings

This section presents an analysis of the related variables of all 62 run-over attacks committed in Israel and the West Bank between January 2000 and March 2016. All of the attacks were carried out by Muslims; most were male (59, or 95.2 percent); three attacks (4.8 percent) were carried out by Muslim women. Run-over attacks were not evenly spread during the research period. We included in our study events since the year 2000, the beginning of the 'second Intifada', although the years up to 2007 were characterized by a relatively low popularity of this *modus operandi*. This changed in 2008, when lone

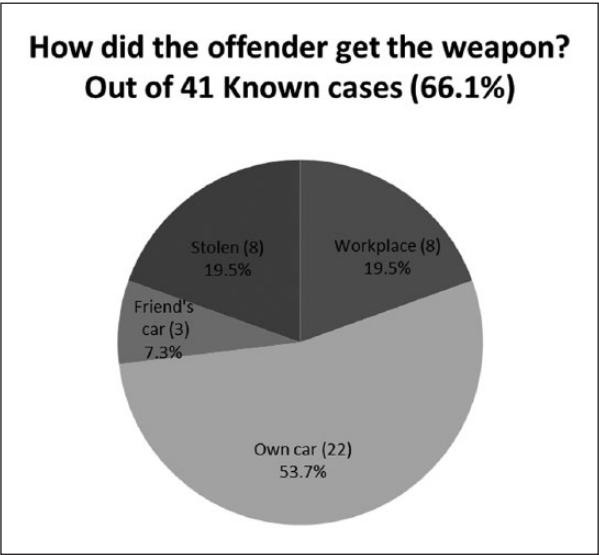


Figure 1. How did the offender obtain the vehicle?

run-over attacks became more frequent, reaching a peak during the years 2014–16. In 2015, during a significant wave of terrorist attacks in Israel, run-over attacks reached an all-time record of 33 documented events.⁸

We divide the findings into three sections. The first section presents findings related to the terrorist attack itself, following the four pillars of opportunity: weapon, target, tools and training, and facilitating conditions. Next, we describe the findings related to the number and the outcomes of the attack – the number and nature of the casualties and the fate of the attacker. Finally, we present the findings regarding the spontaneity of attacks and the pre-attack warnings.

Characteristics of run-over attacks: The ‘four pillars’ of opportunity

The limited resources available to lone attackers, have a direct effect on the four pillars of the situational opportunity, as the following findings demonstrate.

Weapon. All of the attackers in our study selected a vehicle as their weapon of choice. However, 14 of the attacks (22.6 percent) were followed by an armed assault (for example, stabbing), and 48 attacks (77.4 percent) were run-over attacks only; 13 of the attacks (21 percent) involved multiple events. To examine the hypothesis that lone terrorists tend to choose a simple weapon that is easy to get and operate, we analysed how each attacker obtained the vehicle used in the attack. As can be seen in Figure 1, vehicles were readily accessible for most of the attackers. Out of 41 cases for which the source of the vehicle is known, in more than half (22 cases, or 53.7 percent) the attackers used their own vehicle. In eight cases (19.5 percent) the offenders used a vehicle

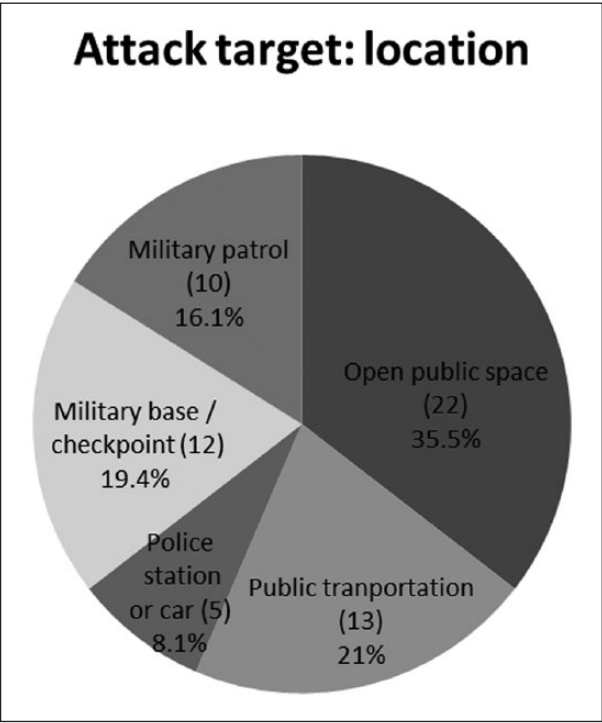


Figure 2. The target and location of the run-over attack.

they obtained from their workplace, and in an additional three cases a vehicle belonging to a friend was used. In only eight cases (19.5 percent) had the offender stolen a vehicle in order to carry out the attack.

As to the vehicle type, 49 were private cars (79 percent), 5 tractors (8.1 percent), 3 trucks (4.8 percent), 4 taxis (6.5 percent) and 1 bus (1.6 percent). The fact that attacks were carried out by a variety of vehicle types demonstrates that this weapon was chosen by the perpetrator because of its availability and accessibility to the attacker through personal ownership or work.

Target. Lone attackers’ lack of resources can be expected to encourage them to choose soft targets that do not require much preparation. Indeed, the findings in the case of run-over attacks clearly show that all the attacks were carried out in public places: bus stations, pickup stations for hitchhikers, checkpoints or intersections. These locations are characterized by the gathering and movement of relatively numerous civilians, as well as security forces. Such places present an easy situational opportunity for a run-over attack. As can be seen in Figure 2, most of the attacks (35, or 56.5 percent) took place either in an open public space, such as a pedestrian passage or a junction (22, or 35 percent), or in public transportation sites (13, or 21 percent). In line with the findings of Hamm and

Table 1. Distance from attacker’s residence to the attack location.

Distance	Frequency	Percent	Cumulative percent
Same place	3	5.3	5.3
1–5 km	22	38.6	43.9
6–10 km	13	22.8	66.7
11–15 km	7	12.3	78.9
More than 15 km	12	21.1	100
Total	57	100	

Spaaij (2015) that police and military officers have become the preferred target for lone wolves, the rest of the attacks targeted military checkpoints (12, or 19.4 percent), military patrols (10, or 16.1 percent) and police stations or cars (5, or 8.1 percent).

The run-over attackers chose targets in places with which they were familiar, and therefore did not require information gathering (about the target, the target area and the route to the target and for escape). In this regard, we found that in the majority of the attacks (at least 38 cases, or 61 percent) there were indications that the location of the attack was familiar to the attacker: where they lived, worked, did their shopping or passed on a daily basis.

Not only were the attackers familiar with the attack location, but the findings indicate that their choice was based on distance as well. Table 1 presents the distance between the attacker’s residence and the location of the attack; 25 of the attacks (43.9 percent) occurred within less than 5km of the attackers’ home, 13 attacks between 6 and 10 km (22.8 percent), 7 from 11 to 15 km (12.3 percent), and only 12 were over 15 km away (21.1 percent). For five cases, the home address was unknown.

Another possible explanation for this finding might be connected to the combination of personal and political/religious factors, which research has found to be contributing factors for lone wolf attacks. Conflicts with family, community norms, friends, employers, etc., may trigger the loner to action within neighbourhood or work settings.

Tools and training. In run-over attacks, the vehicle is used both as the weapon and as the tool by which the attacker gets to the scene of the attack. This use of the car as a tool to access the event location often relied on the attacker’s profession: 14 of the attackers (22.6 percent) were drivers, had legitimate licences and had received driving instruction, in this case training in the usage of what was both the weapon and the mode of transportation to the attack scene.

A run-over attack using the vehicle as a weapon does not require special training in operating a weapon. Any driver or heavy machinery operator can turn the vehicle into an effective weapon. The fact that training and planning are not a significant part of run-over attacks facilitates the opportunity to attack without lengthy preparations. This most likely explains the short time interval between planning and attacking in the 72 percent of known cases that were spontaneous or same-day attacks.

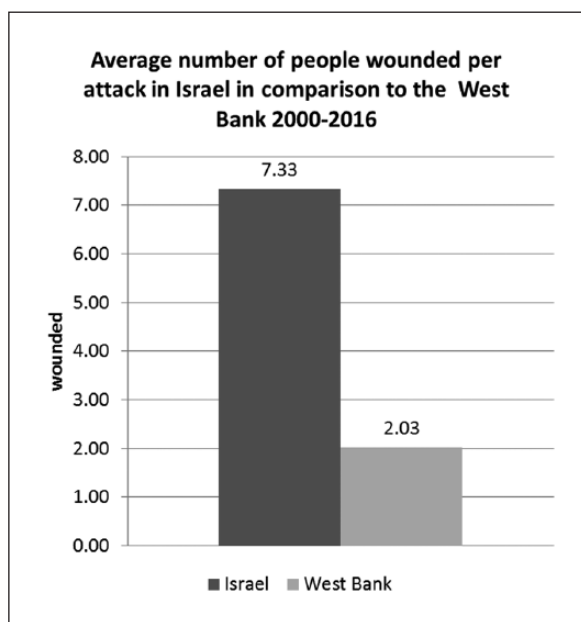


Figure 3. Number of wounded: Run-over attacks in Israel and in the West Bank, 2000–16.

Other indications of the level of planning and training can be found in the form of indicators that the attacker was preparing an additional attack or was engaged in dry runs prior to the event. In only 11 cases (18 percent) was there evidence to suggest that the individual had plans for further attacks. Indications that the attackers engaged in dry runs were found in only four cases (6 percent).

Facilitating conditions. There are many more available targets and potential victims inside Israel as compared with the West Bank. As we can see in Figure 3, run-over attacks inside Israel are more injurious and should therefore result in more attacks inside Israel than in the West Bank. Since only East Jerusalem and Israeli residents can move freely inside Israel, this capability can be considered as a facilitating condition.

The findings indicate that the place of residence and the possession of permits related to that place served as facilitating conditions for many of the attackers, allowing them to travel freely in Israel. This is reflected in the fact that 40.4 percent of the run-over attacks (25) were committed inside Israel by either East Jerusalem residents (21, or 33.9 percent) or Israeli Arabs (4, or 6.5 percent). On the other hand, 34 of the attackers (54.8 percent) lived in the West Bank and committed the attack there (since they did not have the ability to travel into Israel), targeting Israeli settlers or soldiers serving in the West Bank. Two additional attacks were carried out by people who were originally from the Gaza Strip but were staying in the West Bank at the time of the attack, and one attacker's (out of two) home address was unknown. Accordingly, 18 of the attacks took place in Jerusalem

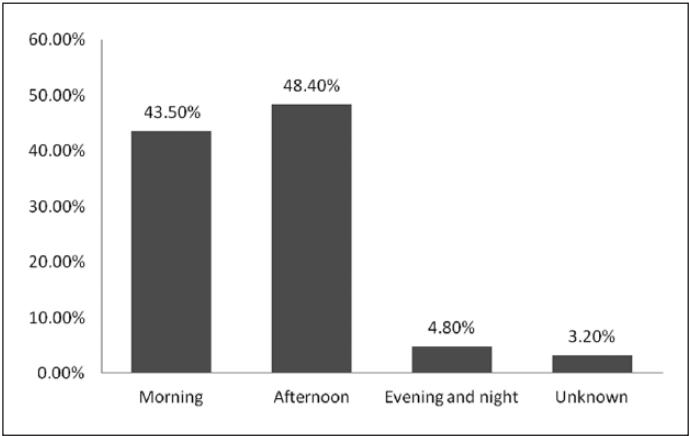


Figure 4. Run-over attacks by time of day.

(29.5 percent), 5 in Tel-Aviv and its surrounding area, 1 in the north of Israel (9.9 percent), and 37 (60.7 percent) in the West Bank.

To examine the frequency of the facilitating condition of ‘copycat’ attacks, we looked at run-over attacks carried out shortly after a previous attack and that demonstrated similar characteristics and occurred in the same area. We found that 27 of the attacks (44.3 percent) could be considered ‘copycat’ attacks. These 27 events took place less than a week after a previously successful attack. Most of them (20) occurred less than three days after the previous attack.

Timing the attack during the day can also facilitate a successful attack. Specific time slots can facilitate the approach to the event location: for example, during working hours a truck or a tractor making its way through central roadways may go unnoticed. Choosing the right time slot may also increase the potential for casualties: targeting a public transportation site at the end of a work day can be more effective than targeting the same location in the middle of the night. The dispersion of events by time of day can be seen in Figure 4.

As can be seen in Figure 4, most of the attacks took place in the morning (5:00–12:00) or afternoon (12:01–18:00): 27 attacks (43.5 percent) and 30 attacks (48.4 percent), respectively. Very few attacks (three, or 4.8 percent) occurred during the evening and at night (between 18:01 and 04:59). In two cases the exact time of the attack is unknown (3.2 percent).

Number and outcome of attacks

The findings highlight some important trends in the number of run-over attacks committed over the study period and in the outcome of these attacks. From the year 2000, there was a significant rise in the popularity of run-over attacks as a terrorist modus operandi: from one event in 2000 and then several years without any events (2003 to 2007), to 4 events in 2008, 7 in 2014 and 33 in 2015, all committed by lone actors.

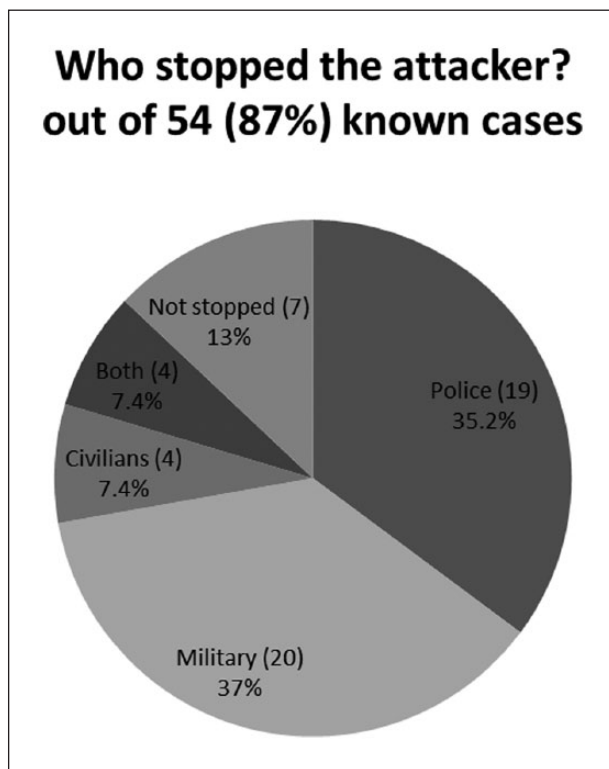


Figure 5. Who stopped the attacker?

As for the fate of the attacker, 24 terrorists were arrested following the attack (38.7 percent) and 36 were killed during the attack (58.1 percent); for the remaining 2 cases the fate of the attacker is unknown. In most cases (39, or 72 percent) it was police or military forces who stopped the attacker – police officers operating within Israel (19, or 35.2 percent) and soldiers in the West Bank (20, or 37 percent); see Figure 5. Civilians were responsible for stopping the attacker in four of the cases (7.4 percent), and in an additional four cases they did so jointly with either police officers or military forces (7.4 percent). In seven cases the attacker was not stopped (13 percent).

An independent-samples *t*-test was conducted to compare the number of those injured in attacks committed by attackers who were trained as professional drivers with attackers who were not professional drivers. There was a significant difference in the scores for professional ($M = 7.57$, $SD = 9.78$) and non-professional drivers ($M = 3.06$, $SD = 3.19$; $t(60) = 2.77$, $p = .00$). These results suggest that attacks committed by attackers trained as professional drivers led to a larger number of injured. This finding can probably be attributed to the fact that professional drivers more frequently than non-professional drivers use heavy equipment such as tractors, buses and trucks, which can cause greater damage.

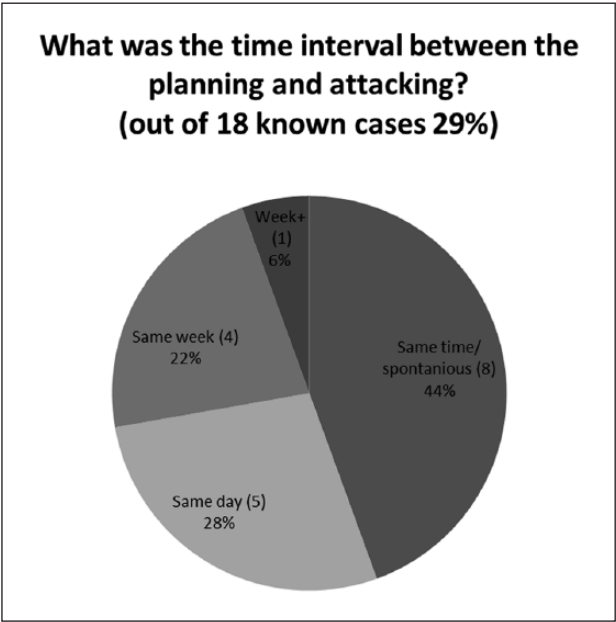


Figure 6. Time intervals between planning and attacking.

Spontaneity of some attacks and pre-warning of others

As mentioned, run-over attacks require little advance planning or logistical support. Therefore, this study focusing on the attack examined how long it took to prepare the attack; specifically, how much time passed between the decision to carry out the attack and the attack itself (see Figure 6). In this regard, the findings revealed a substantial finding about the run-over attacks: at least 8 of the attacks were spontaneous, 5 occurred on the same day as the decision to attack and 4 occurred in the same week (there was information about the time interval between planning and attacking in 18 cases).

Another substantial finding regarding the period prior to the run-over attack is that at least in 26 (41.9 percent) cases that were not spontaneous we found in retrospect that there had been an early indication of a potential attack. The various pre-warning attack indicators are presented in Figure 7.

As can be seen in Figure 7, out of 26 cases for which there are indicators of some type of pre-warning, in 8 of the attacks (30.8 percent) there were letters or public statements prior to the event, in 11 attacks (42.3 percent) there were verbal statements made to family or friends, and in 4 (15.4 percent) there were verbal statements to a wider audience. In 22 of the cases (84.6 percent) at least one other person knew in advance about the attacker’s grievance,⁹ in 24 of the cases (92.3 percent) at least one other person knew in advance about the attacker’s extremist ideology, and in 5 cases (19.2 percent) the attacker provided a specific pre-event warning. These findings suggest that, in contrast to the common perception that lone-actor attacks are impossible to predict, in many cases there is some advance indication of the coming attack.

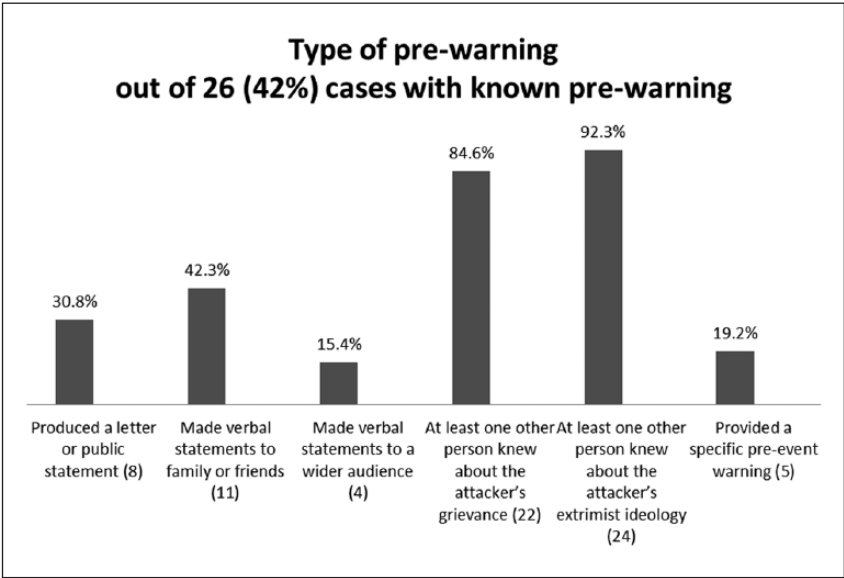


Figure 7. Pre-warnings for run-over attacks.

Discussion and conclusions

In an attempt to investigate what the situational conditions are that facilitate the occurrence of lone wolf run-over attacks, this study has focused on the actual offences (the ‘criminal events’) rather than the offenders (for which previous studies did not find a unique profile). The study has attempted to describe the situational circumstances, as well as the terrorists’ capabilities and resources, that shaped the choices made by the lone run-over attacker.

As to the main question leading to this study, the findings reveal common characteristics of lone run-over attacks. They show that, as expected, lone run-over attacks are dictated by the immediate circumstances of the situation (Clarke, 1997). In line with the predictions of this study they are directly shaped by the ‘four pillars’ of lone attack opportunities (targets, weapons, tools and training, and facilitating conditions). The findings reveal that lone run-over attackers compensate for their lack of resources by taking advantage of nearby situational opportunities. Examples of such situational opportunities, as revealed in our findings, are, firstly, that attackers chose easily accessible public places frequented by civilians and security forces (for example, bus stations, pickup stations for hitchhikers). Secondly, the sites selected by run-over terrorists were located in close proximity to the area where they lived or conducted their daily lives and, in most cases, with which they were familiar. This second conclusion is in line with that of Clarke and Newman (2006): terrorists attack targets that are closer to their base of operations, within their familiar environment. A third example of situational opportunity found in our study pointed to the fact that in most attacks perpetrators used an easily available

weapon: their own vehicle or a vehicle provided to them from work. The finding suggesting that attacks committed by professional drivers cause more damage is another example of situational opportunity. Taking advantage of access to vehicles and training as a professional driver is similar to ex-military personnel in the US making use of their training and knowledge for attacks (Gill, 2015). Therefore, SCP tactics should not only address 'target hardening' but also screen individuals who are authorized to operate heavy equipment (a vivid example is the terrible attack in Nice, France).

Between the end of 2015 and the beginning of 2016, the local municipal authorities in partnership with the Israel Police and other governmental offices began fortifying bus stations with concrete and metal columns, initially in areas adjacent to sites where attacks had previously occurred. These simple measures of target hardening are presumed to have reduced not only the number of run-over attacks but also the severity of the consequences of such terrorist attacks (see Figure 8 in Appendix A for the average number of wounded). These findings demonstrate the effectiveness of SCP methods, which can prevent lone run-over attacks in places that present an easy situational opportunity for such attacks. Essentially, situational prevention by, for instance, adding simple protection in locations such as bus stations and hitchhiking spots that are easily accessible to potential run-over attackers has been an effective counter-measure response.

The finding of previous studies that there is no unique distinctive profile of the run-over lone terror attacker, together with the findings of the current study that there are certain characteristics of lone run-over attacks, is noteworthy. These findings suggest that, in order to prevent run-over terrorist attacks or to minimize the damage, one should not concentrate primarily on identifying the profile of the potential attacker. Rather, effective counter-measures should identify the run-over attack elements and introduce SCP measures that have been found to be effective in preventing non-terrorist crime (Guerette and Bowers, 2009). According to Rational Choice theory, offenders' decisions to commit crimes for personal gain and benefit are heavily influenced by situational incentives and opportunities. The situational opportunities of a specific setting determine its attraction to the offender and are influenced by factors such as the accessibility of commendable targets and valuable victims, acquaintance with the territory, accessibility of the location, escape routes, hiding places, potential collaborators, habit, etc. Changing and reducing situational opportunities for committing terrorist attacks could affect the cost-benefit assessments of the incentives and risks. Therefore, utilizing SCP techniques that could result in the attack being perceived by the perpetrator as much more complicated and costly should be effective in preventing future attacks ('criminal event'). According to our findings, applying SCP can specifically prevent lone run-over attacks. This is particularly relevant because recent studies have tested the effectiveness of SCP in reducing opportunities for terrorism and found that attacks for the most part were not displaced to other locations (Hsu and Apel, 2015; Perry et al., 2017). This is most likely because the situational opportunities present in alternative locations were perceived as less favourable.

This study has revealed two noteworthy findings regarding the spontaneity of some of the lone run-over attacks and the pre-warnings of other attacks. Sufficient intelligence gathering and analysing capabilities could possibly have foiled attacks, at least in some of the 26 cases (41.9 percent of the total cases) that, in retrospect, were found to have

pre-warning indicators of an attack. This means that also in cases of lone wolf terrorism it is important to develop intelligence tools by practising 'high policing' (focusing on strategic issues at a macro level, utilizing proactive methods) in order to identify potential attackers. One application for 'high policing' has recently been conducted by the Israeli Security Agency (ISA), which, owing to intensified incitement through social networks and other web venues, has been engaging in a variety of counter-measures. Methods were designed to identify the most influential channels of incitement in various social networks. Once individuals are identified as potential threats, they are warned or arrested in the hope that these actions will disrupt and/or foil attacks.¹⁰

By contrast, at least 13 of the attacks were spontaneous or the decision to attack occurred on the same day. In these instances, no intelligence tools could have predicted the attack because even the attackers themselves did not yet know that they were going to commit an attack. In these cases, 'high policing' is much less effective and 'low policing' is necessary, primarily in the form of the SCP approach, a proactive network of community intelligence and the running of risk management models. Consequently, in lone run-over attacks, effective counter-terrorism combines 'high policing' and 'low policing', which complement each other.

Situational prevention of terrorism is based upon an understanding of the opportunities and consequences of the social, physical and technical characteristics of a given society that terrorists take advantage of when executing specific methods of attack (Freilich and Newman, 2009). In contrast to most of the run-over attacks, many lethal bombers and lone shooter attackers (such as Anders Breivik, Theodore Kaczynski, Joseph Paul Franklin, and Eric Rudolph) have not acted locally but have travelled hundreds of miles from home to reach their target(s). We therefore recommend that future studies on lone wolf terrorists should study other types of attack, such as stabbing, bombing and shooting.

As mentioned, we do not belittle the long-term importance of reducing the motivation to attack (for religious, political, economic, psychological, social and other factors that foster terrorism). Conflict resolution by political and diplomatic means is not always possible in the short term and is often very difficult, frequently becoming even more complicated as a result of ongoing terrorist attacks. The challenges faced when dealing with the root causes of terrorism are in a way similar to the difficulties that societies face when treating the source of crime in general. Clarke and Newman (2006) claim that, unlike in political approaches, it is necessary to focus on foiling terrorism through situational prevention: 'we must not rely on changing the hearts and minds of terrorists' (Clarke and Newman, 2006: 11). One should also remember that an important part of 'criminal involvement' (in this study, the decision to become a lone run-over attacker) is the prospect of succeeding. Hence negatively upsetting the cost-benefit assessments of a 'criminal event' is also expected to negatively affect the motivation to become a terrorist.

This study specifically examines lone terrorist run-over attacks, consistent with the recommendation to study particular kinds of terrorist attack. When considering our ability to generalize the findings of this study, we should bear in mind two important facts:

- (a) Although the research was done in Israel, we have a strong basis to assume that the analysis would also apply to other Western democracies. Yet we should beware of generalizations and be sensitive to the sociopolitical context.
- (b) The literature presents many common denominators (as they appear in the ‘four pillars of opportunity’) amongst the various types of lone terrorist attack. The findings of this study confirm our hypotheses regarding these common elements. We think that the recommendation to study different kinds of lone terrorist attack is very valid, since we cannot know to what extent run-over lone attacks are similar to other sorts of lone attack. For these reasons, we recommend that future studies should examine other kinds of lone attack as well as studying lone run-over attacks in other parts of the world.

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Notes

1. Known also as lone attackers or lone terrorists.
2. See, for example, the 2012 Europol statistical report (EUROPOL, 2012: 17).
3. See, for example, Batley (2015). See also CBS Las Vegas (2014).
4. It should be noted that Becker included a number of law enforcement sting cases in his sample and that the targets were selected by government informants or FBI agents.
5. See <http://www.algemeiner.com/2015/10/18/disappointed-in-failure-of-stabbings-hamas-calls-on-palestinians-to-drop-knives-commit-car-rammings-for-higher-jewish-casualties/>.
6. We are currently conducting other research that is studying stabbing attacks by lone jihadists in Israel.
7. Website of the Israeli Security Agency (ISA) (2010).
8. For details about the 2015 terror wave, see the ISA report at: <https://www.shabak.gov.il/English/EnTerrorData/Reviews/Pages/skira091215.aspx>.
9. A similar percentage of lone actors who expressed their intention to commit violence prior to an attack were also reported in a recent US study (Hamm and Spaaij, 2015).
10. See <https://www.shabak.gov.il/publications/study/Pages/ReportY2015.aspx>.

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Appendix A

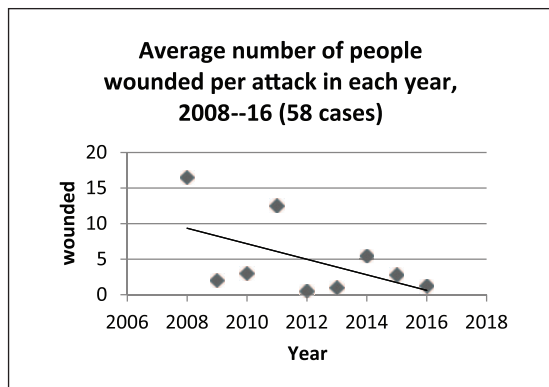


Figure 8. Yearly average number of wounded, 2008–16.